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MONSANTO COMPANY
ORGANIC CHEMICALS DIVISION

October 15, 1968

To The Business Director, Plasticizers and General Chemicals
Organic Chemicals Division

Estimate No. 3015
Department No. 826.17 (Solid Aroclor)
Anniston Plant - Anniston, Alabama

Solid Aroclor Instrumentation

Capital Addition	\$14,000
Alteration Expense	\$ 800
Appropriation Requested	\$14,800
Net Savings	\$62,800

DESCRIPTION

This project proposes to install 3 radiation instruments in the Solid Aroclor Department. Two of these instruments will monitor crude and refined Solid Aroclor specific gravity and one will give a low level alarm on the Solid Aroclor still. Also included in the project are instruments to more closely control coolant temperature to the Solid Aroclor still condenser.

APPROVALS

Plant Manager

W B Papageorge

10-29-68

Technical Production Manager

WAK

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Business Director

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NEED FOR PROJECT

Installation of this project will result in net savings of \$62,800/year. It will also improve safety and product quality.

Projects have been approved that will bring Solid Aroclor capacity back to standard of 835,000 lbs/month. This project will result in a further increase to 950,000 lbs/month. Details on the overall program to increase capacity are stated in the Aroclor Manufacturing Improvement Plan issued July 1968.

Under present operating procedure up to 22" of undistilled product is left in the still pot to insure maximum protection of the submerged still pump (TSD Job 370-831 Report No. 1). The ability to distill this extra amount while leaving enough material in the still to protect the pump is worth \$100,400/year. To accomplish this, one instrument measuring specific gravity will be placed on the #4 still receiver and a low level alarm installed on the still pot. These two instruments will eliminate the guesswork in deciding when a distillation batch is complete. The still operator can continue the distillation until he gets the desired specific gravity in the receiver or until he gets a low level alarm on the still. The ability to do this will result in an increased yield from the Solid Aroclor still.

At present, it is necessary to shutdown the Solid Aroclor chlorinator for 1/2 hour when checking a sample for chlorination completion. Installation of a density measuring instrument will eliminate the non-productive time at the end of a batch.

Coolant temperature to the #4 still condenser varies as much as $\pm 20^{\circ}\text{C}$. This allows Aroclor vapor to reach the jet, condense, and plug up vacuum lines. Better control of the coolant temperature will result in eliminating 88 hours/yr. of downtime.

SAVINGS AND OTHER BENEFITS

The #4 still low level alarm and still receiver density measurement could result in a 12% yield increase worth \$100,400/yr. Installation of a density measuring instrument on the #9 chlorinator circulating line will decrease the batch cycle 1/2 hour, which is worth \$9400/yr. potential savings. Closer control of the still condenser coolant temperature could reduce downtime up to 88 hours/yr., which gives a potential savings of \$4100/yr.

SAVINGS AND OTHER BENEFITS (Cont'd)

<u>Description</u>	<u>Potential Savings</u>	<u>Success Factor</u>	<u>Savings Claimed</u>	<u>Type</u>
low level alarm & still receiver density measurement	\$100,400/yr.	0.58	\$58,200/yr.	Yield
#9 chlorinator density measurement	\$ 9,400/yr.	0.50	\$ 4,700/yr.	Capacity
still condenser coolant control	\$ 4,100/yr.	0.50	\$ 2,000/yr.	Downtime
Totals	\$113,900/yr.	—	\$64,900/yr.	—
	less dep. and maint. (15%)		<u>2,100</u>	
	Net Savings		\$62,800/yr.	

Another benefit is better product quality. The density instrument on the #9 chlorinator will reduce the possibility of over-chlorinating Solid Aroclors, thereby creating a more uniform product.

SAFETY

Eliminating the need to take a sample at the end of a batch will reduce the number of hot Aroclor samples that have to be handled.

The radiation system to be used is constructed with personnel safety as the first consideration. It is designed so that radioactive field intensity is less than the tolerance level recommended by the AEC.

STREAM AND AIR POLLUTION

No change in stream or air pollution will occur because of this project.

STATUS OF PROJECT

Preliminary design is complete. Equipment delivery is 4-6 weeks. EDC is December 15, 1968. Verbal approval for \$8000 received 8/22/68.

ALTERNATE COURSE

Continue operating as at present. This is not recommended because the increased demand for Solid Aroclor requires greater production.

RECOMMENDATION

Approval of this project is recommended.

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